1. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1050}{0}} + \sqrt{210}i$$

A. Not a Complex Number

B. Rational

C. Irrational

D. Pure Imaginary

E. Nonreal Complex

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2. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{93636}{324}}$$

A. Whole

B. Irrational

C. Rational

D. Not a Real number

E. Integer

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3. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{193600}{400}}$$

A. Not a Real number

B. Rational

C. Irrational

D. Integer

E. Whole

4. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{63 - 55i}{3 + 2i}$$

A. $a \in [5.5, 7]$ and $b \in [-23.5, -21]$

B. $a \in [19.5, 22.5]$ and $b \in [-28.5, -26.5]$

C. $a \in [5.5, 7]$ and $b \in [-293, -290.5]$

D. $a \in [22, 24]$ and $b \in [-3.5, -2.5]$

E. $a \in [78, 80.5]$ and $b \in [-23.5, -21]$

5. Simplify the expression below and choose the interval the simplification is contained within.

$$12 - 5^2 + 17 \div 16 * 4 \div 20$$

A. $[-12.81, -12.66]$

B. $[37, 37.09]$

C. $[-13.16, -12.83]$

D. $[37.09, 37.36]$

E. None of the above

6. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 + 66i}{-7 - i}$$

A. $a \in [-9.5, -8]$ and $b \in [-12, -9]$

B. $a \in [-12, -10.5]$ and $b \in [-390.5, -389]$

C. $a \in [-571, -569.5]$ and $b \in [-8, -7]$

D. $a \in [-12, -10.5]$ and $b \in [-8, -7]$

E. $a \in [-11, -9]$ and $b \in [-68, -65.5]$

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7. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{2057}{11}} + \sqrt{110}i$$

A. Pure Imaginary

B. Irrational

C. Rational

D. Nonreal Complex

E. Not a Complex Number

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8. Simplify the expression below and choose the interval the simplification is contained within.

$$19 - 4^2 + 9 \div 3 * 17 \div 16$$

A. $[33.42, 35.53]$

B. $[2.16, 5.17]$

C. $[5.8, 7.07]$

D. $[37.78, 38.61]$

E. None of the above

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9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-5 + 10i)(-9 - 2i)$$

A. $a \in [23, 27]$ and $b \in [-103, -98]$

B. $a \in [45, 46]$ and $b \in [-20, -19]$

C. $a \in [23, 27]$ and $b \in [93, 104]$

D. $a \in [64, 66]$ and $b \in [78, 86]$

E. $a \in [64, 66]$ and $b \in [-89, -79]$

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10. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-6 - 2i)(4 + 9i)$$

A. $a \in [-42, -38]$ and $b \in [42, 47]$

B. $a \in [-27, -22]$ and $b \in [-20, -17]$

C. $a \in [-11, -3]$ and $b \in [59, 64]$

D. $a \in [-11, -3]$ and $b \in [-64, -59]$

E. $a \in [-42, -38]$ and $b \in [-47, -42]$
